

The invention claimed is:

1. A process for forming a polymer film on a chrome plate, comprising:
applying an aqueous primer compositions to the chrome plate, the primer composition containing a silane adhesion promoter;
drying the applied primer composition;
5 applying a urethane composition over the chrome plate on which the aqueous primer was applied and dried; and
curing the urethane composition to form a polyurethane film.
2. The process of claim 1, wherein the silane adhesion promoter is an aromatic amine functional silane-coupling agent.
- 3 The process of claim 2, wherein the aromatic amine functional silane-coupling agent is N-phenyl-gamma-aminopropyltrimethoxysilane.
4. The process of claim 1, wherein the silane adhesion promoter is an epoxy functional silane-coupling agent.
5. The process of claim 4, wherein the epoxy functional silane-coupling agent is glycidoxypropylmethoxysilane.
6. The process of claim 1, wherein the silane adhesion promoter is present in the aqueous primer composition in an amount of from about 0.05% to about 5% by weight.
7. The process of claim 1, wherein the silane adhesion promoter is present in the aqueous primer composition in an amount of from about 0.5% to about 2% by weight.
8. The process of claim 1, wherein the silane adhesion promoter is present in the aqueous primer composition in an amount of about 1% by weight.

9. The process of claim 1, wherein the urethane composition includes a polymethacrylate polyol.

10. The process of claim 1, wherein the urethane composition further comprises a colorant in an amount effective to impart a desired color, tint or hue to the chrome plate.

11. The process of claim 1, wherein the polyurethane film has a thickness of from 5-200 microns.

12. The process of claim 1, wherein the polyurethane film has a pencil hardness of from about 3H to 6H.

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✓ 13. A process for forming a polymer film on a bright metal surface, comprising:
applying an aqueous primer composition to the bright metal surface, the primer composition containing a silane adhesion promoter that is selected from the group consisting of aromatic amine functional silane-coupling agents and epoxy functional silane-coupling agents;
drying the applied primer composition;
applying a urethane composition over the metal surface on which the aqueous primer was applied and dried; and
curing the urethane composition to form a polyurethane film.

103 ✓ 14. The process of claim 13, wherein the silane adhesion promoter is gamma-glycidoxypropylmethoxysilane.

103 ✓ 15. The process of claim 13, wherein the silane adhesion promoter is N-phenol-gamma-aminopropyltrimethoxysilane.

✓ 16. The process of claim 13, wherein the silane adhesion promoter is present in the aqueous primer composition in an amount of from about 0.05% to about 5% by weight.

✓ 17. The process of claim 13, wherein the silane adhesion promoter is present in the aqueous primer composition in an amount of from about 0.5% to about 2% by weight.

✓ 18. The process of claim 13, wherein the silane adhesion promoter is present in the aqueous primer composition in an amount of about 1% by weight.

W 19. The process of claim 13, wherein the urethane composition includes a polymethacrylate polyol.

✓ 20. The process of claim 13, wherein the urethane composition further comprises a colorant in an amount effective to impart a desired color, tint or hue to (the chrome plate.)

09707866-110700 L 21. The process of claim 13, wherein the polyurethane film has a thickness of from 5-200 microns.

2 22. The process of claim 13, wherein the polyurethane film has a pencil hardness of from about 3H to 6H.

09707866-110700 23. An article comprising:
a chrome plate;
a polyurethane film adhered to the chrome plate; and
a silane adhesion promoter enhancing adhesion between the polyurethane film and the
5 chrome plate.

24. The article of claim 23, wherein the silane adhesion promoter is an aromatic amine functional silane-coupling agent.

25. The article of claim 24, wherein the aromatic amine functional silane-coupling agent is N-phenyl-gamma-aminopropyltrimethoxysilane.

26. The article of claim 23, wherein the silane adhesion promoter is an epoxy functional silane-coupling agent.

27. The article of claim 26, wherein the epoxy functional silane-coupling agent is glycidoxypropylmethoxysilane.

28. The article of claim 23, wherein the urethane composition includes a polymethacrylate polyol.

29. The article of claim 23, wherein the urethane composition further comprises a colorant in an amount effective to impart a desired color, tint or hue to the chrome plate.

30. The process of claim 23, wherein the polyurethane film has a thickness of from 5-200 microns.

31. The process of claim 23, wherein the polyurethane film has a pencil hardness of from about 3H to 6H.

32. An article comprising:
a bright metal substrate;
a polyurethane film adhered to the metal substrate; and
a silane adhesion promoter enhancing adhesion between the polyurethane film and the metal substrate, the silane adhesion promoter selected from the group consisting of epoxy functional silane-coupling agents and aromatic amine functional silane-coupling agents.

33. The article of claim 32, wherein the silane adhesion promoter is gamma-glycidoxypropylmethoxysilane.

34. The article of claim 32, wherein silane adhesion promoter is N-phenol-gamma-aminopropyltrimethoxysilane.

35. The article of claim 32, wherein the urethane composition includes a polymethacrylate polyol.

36. The article of claim 32, wherein the urethane composition further comprises a colorant in an amount effective to impart a desired color, tint or hue to the chrome plate.

37. The process of claim 32, wherein the polyurethane film has a thickness of from 5-200 microns.

38. The process of claim 32, wherein the polyurethane film has a pencil hardness of from about 3H to 6H.

39. A two-component urethane composition comprising:
a polyol;
a polyisocyanate; and
a silane adhesion promoter selected from the group consisting of epoxy functional silane-coupling agents and aromatic amine functional silane-coupling agents.

40. The composition of claim 39, wherein the silane adhesion promoter is gamma-glycidoxypropylmethoxysilane.

41. The composition of claim 39, wherein the silane adhesion promoter is N-phenyl-gamma-aminopropyltrimethoxysilane.

42. The composition of claim 39, wherein the silane adhesion promoter is present in the composition in an amount of from about 0.05% to about 5%.

43. The composition of claim 39, wherein the silane adhesion promoter is present in the composition in an amount of from about 0.5% to about 2%.

44 The composition of claim 39, wherein the silane adhesion promoter is present in the composition in an amount of about 1 %.

45. The composition of claim 39, wherein the two-component urethane composition includes a polymethacrylate polyol.

46. The composition of claim 39, wherein the two-component urethane composition further comprises a colorant in an amount effective to impart a desired color, tint or hue to the chrome plate.

47. A process for forming a polyurethane film on a chrome plate, comprising:
applying a urethane composition to the chrome plate, the urethane composition
containing a silane adhesion promoter; and
curing the urethane composition to form a polyurethane film.

48. The process of claim 47, wherein the silane adhesion promoter is an aromatic amine functional silane-coupling agent.

49. The process of claim 48, wherein the aromatic amine functional silane-coupling agent is N-phenyl-gamma-aminopropyltrimethoxysilane.

50. The process of claim 47, wherein the silane adhesion promoter is an epoxy functional silane-coupling agent.

51. The process of claim 50, wherein the epoxy functional silane-coupling agent is glycidoxypropylmethoxysilane.

52. The process of claim 47, wherein the silane adhesion promoter is present in the urethane composition in an amount of from about 0.05% to about 5% by weight.

53. The process of claim 47, wherein the silane adhesion promoter is present in the urethane composition in an amount of from about 0.5% to about 2% by weight.

54. The process of claim 47, wherein the silane adhesion promoter is present in the urethane composition in an amount of about 1% by weight.

55. The process of claim 47, wherein the urethane composition includes a polymethacrylate polyol.

56. The process of claim 47, wherein the urethane composition further comprises a colorant in an amount effective to impart a desired color, tint or hue to the chrome plate.

57. The process of claim 47, wherein the polyurethane film has a thickness of from 5-200 microns.

58. The process of claim 47, wherein the polyurethane film has a pencil hardness of from about 3H to 6H.

59. ~~A process of forming a polymer film on a bright metal surface, comprising:
applying a urethane composition to the metal surface, the urethane composition containing a silane adhesion promoter that is selected from the group consisting of aromatic amine functional silane-coupling agents and epoxy functional silane-coupling agents; and
curing the urethane composition to form a polyurethane film.~~

60. The process of claim 59, wherein the silane adhesion promoter is gamma-glycidoxypropylmethoxysilane.

61. The process of claim 59, wherein the silane adhesion promoter is N-phenol-gamma-aminopropyltrimethoxysilane.

62. The process of claim 59, wherein the silane adhesion promoter is present in the urethane composition in an amount of from about 0.05% to about 5% by weight.

63. The process of claim 59, wherein the silane adhesion promoter is present in the urethane composition in an amount of from about 0.05% to about 2% by weight.

64. The process of claim 59, wherein the silane adhesion promoter is present in the urethane composition in an amount of about 1% by weight.

65. The process of claim 59, wherein the urethane composition includes a polymethacrylate polyol.

66. The process of claim 59, wherein the urethane composition further comprises a colorant in an amount effective to impart a desired color, tint or hue to the chrome plate.

67. The process of claim 59, wherein the polyurethane film has a thickness of from 5-200 microns.

68. The process of claim 59, wherein the polyurethane film has a pencil hardness of from about 3H to 6H.

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